MYSQL Module End Project

Topic: Library Management System

QUESTION:

Build a project based on Library Management System. It keeps track of all information about books in the library, their cost, status and total number of books available in the library.

Create a database named library and following TABLES in the database:

- 1. Branch
- 2. Employee
- 3. Books
- 4. Customer
- 5. IssueStatus
- 5. ReturnStatus

Attributes for the table:

1. Branch

Branch_no - Set as PRIMARY KEY Manager_Id Branch_address Contact no

```
-- Create the database
 2 • CREATE DATABASE library;
      -- Use the database
4 • USE library;
      -- Create the Branch table
7 • ⊖ CREATE TABLE Branch (
        Branch no INT PRIMARY KEY,
9
        Manager Id INT,
         Branch_address VARCHAR(50),
10
        Contact_no VARCHAR(20)
11
12 );
13 • INSERT INTO Branch (Branch_no, Manager_Id, Branch_address, Contact_no)
14
      (1, 101, 'ABC STREET UK', '123-456-7890'),
        (2, 102, 'CBC JUNCTION UK', '234-567-8901'),
          (3, 103, 'AJC POST US', '345-678-9012'),
        (4, 104, 'ZXY STREET UK', '456-789-0123'),
        (5, 105, 'TYU STREET US', '567-890-1234'),
19
          (6, 106, 'HUI POST CANADA', '678-901-2345'),
```

```
21
             (7, 107, 'LIO CORNER PARIS', '789-012-3456'),
             (8, 108, 'SDE JUNCTION AFRICA', '890-123-4567'),
 22
             (9, 109, 'OOI STREET INDIA', '901-234-5678'),
 23
             (10, 110, 'LOME JUNCTION ROME', '012-345-6789');
 24
         SELECT * FROM Branch;
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   Branch_no Manager_Id Branch_address
                                             Contact no
             101
                         ABC STREET UK
                                             123-456-7890
  1
             102
  2
                        CBC JUNCTION UK
                                             234-567-8901
             103
                         AJC POST US
                                             345-678-9012
             104
                                             456-789-0123
                        ZXY STREET UK
             105
                        TYU STREET US
                                             567-890-1234
             106
                        HUI POST CANADA
                                             678-901-2345
  6
                                             789-012-3456
             107
                        LIO CORNER PARIS
  8
             108
                        SDE JUNCTION AFRICA
                                             890-123-4567
  9
             109
                                             901-234-5678
                         OOI STREET INDIA
   10
             110
                        LOME JUNCTION ROME
                                             012-345-6789
            NULL
  NULL
```

2. Employee

Emp_Id - Set as PRIMARY KEY

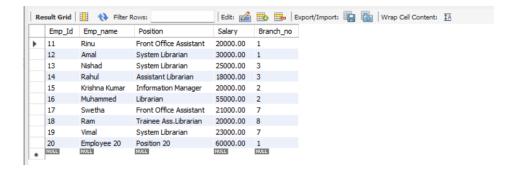
Emp name

Position

Salary

Branch_no - Set as FOREIGN KEY and it refer Branch_no in Branch table

```
28 • ○ CREATE TABLE Employee (
           Emp_Id INT PRIMARY KEY,
29
           Emp name VARCHAR(25),
30
           Position VARCHAR(25),
31
32
           Salary DECIMAL(10, 2),
           Branch no INT,
33
           FOREIGN KEY (Branch_no) REFERENCES Branch(Branch_no)
34
       );
35
       INSERT INTO Employee (Emp_Id, Emp_name, Position, Salary, Branch_no )
36 •
37
       (11, 'Rinu', 'Front Office Assistant', 20000.00, 1),
38
       (12, 'Amal', 'System Librarian', 30000.00, 1),
39
40
       (13, 'Nishad', 'System Librarian', 25000.00, 3),
       (14, 'Rahul', 'Assistant Librarian', 18000.00, 3),
41
       (15, 'Krishna Kumar', 'Information Manager', 20000.00, 2),
42
       (16, 'Muhammed', 'Librarian', 55000.00, 2),
43
       (17, 'Swetha', 'Front Office Assistant', 21000.00, 7),
44
45
       (18, 'Ram', 'Trainee Ass.Librarian', 20000.00, 8),
46
       (19, 'Vimal', 'System Librarian', 23000.00, 7),
       (20, 'Employee 20', 'Position 20', 60000.00, 1);
48 •
       SELECT * FROM Employee;
```



3. Books

ISBN - Set as PRIMARY KEY

Book title

Category

Rental Price

Status [Give yes if book available and no if book not available]

Author

Publisher

```
51 • ⊖ CREATE TABLE Books (
           ISBN VARCHAR(20) PRIMARY KEY,
52
53
           Book_title VARCHAR(25),
           Category VARCHAR(25),
54
55
           Rental Price DECIMAL(10, 2),
           Status ENUM('yes', 'no'),
56
           Author VARCHAR(25),
57
           Publisher VARCHAR(25)
58
59
       INSERT INTO Books (ISBN, Book_title, Category, Rental_Price, Status, Author, Publisher) VALUES
60 •
       ('9780141182551', '1984', 'Fiction', 12.99, 'yes', 'George Orwell', 'Penguin Books'),
61
       ('9780061122415', 'To Kill a Mockingbird', 'Fiction', 10.99, 'no', 'Harper Lee', 'HPMC'),
62
       ('9780743273565', 'The Great Gatsby', 'Fiction', 8.99, 'yes', 'F. Scott Fitzgerald', 'Scribner'),
63
       ('9780141439563', 'Pride and Prejudice', 'Fiction', 7.99, 'no', 'Jane Austen', 'Penguin Classics'),
64
       ('9780140449146', 'Frankenstein', 'Fiction', 9.99, 'yes', 'Mary Shelley', 'Penguin Classics'),
65
       ('9780064407663', 'Charlottes Web', 'Children', 6.99, 'yes', 'E.B. White', 'HarperCollins'),
66
       ('9780439023528', 'The Hunger Games', 'Young Adult', 11.99, 'no', 'Suzanne Collins', 'Scholastic Press'),
67
       ('9780439554930', 'Harry Potter', 'Children', 9.99, 'yes', 'J.K. Rowling', 'Scholastic Ltd'),
68
       ('9780544003415', 'The Hobbit', 'Fantasy', 10.99, 'yes', 'J.R.R. Tolkien', 'Mariner Books'),
69
70
       ('9780316015844', 'Twilight', 'Young Adult', 8.99, 'yes', 'Stephenie Meyer', 'Little, Brown and Company');
       SELECT * FROM Books;
71 •
```



4. Customer

Customer_Id - Set as PRIMARY KEY Customer_name Customer_address Reg_date

```
74 ● ⊖ CREATE TABLE Customer (
 75
           Customer_Id INT PRIMARY KEY,
           Customer_name VARCHAR(255),
 76
 77
           Customer address VARCHAR(255),
 78
           Reg_date DATE
      ز( ا
 79
        -- Insert records into the Customer table
 80
 81 • INSERT INTO Customer (Customer_Id, Customer_name, Customer_address, Reg_date) VALUES
 82
       (111, 'Abhai', 'ABC STREET UK', '2023-01-01'),
       (112, 'Alex', 'ZXY STREET UK', '2023-05-01'),
       (113, 'Nitara', 'ALIO CORNER PARIS', '2023-03-01'),
       (114, 'Zoya', 'ZXY STREET UK', '2023-04-01'),
 85
       (115, 'Ali', 'ABC STREET UK', '2023-05-01'),
       (116, 'Merlin', 'TYU STREET US', '2023-04-01'),
 87
       (117, 'Shine', 'SDE JUNCTION AFRICA', '2023-07-01'),
 88
 89
       (118, 'Thomas', 'SDE JUNCTION AFRICA', '2023-02-01'),
       (119, 'Amoy', 'TYU STREET US', '2023-02-01'),
 90
       (210, 'Lijoy', 'HUI POST CANADA', '2023-1-01');
 92 • SELECT * FROM Customer;
                                      | Edit: 🕍 📆 🖺 | Export/Import: 🏣 👸 | Wrap Cell Content: 🔣
Reg_date
   Customer_Id Customer_name Customer_address
  111
             Abhai
                          ABC STREET UK
                                           2023-01-01
   112 Alex ZXY STREET UK 2023-05-01
   113
             Nitara ALIO CORNER PARIS 2023-03-01
   114 Zoya ZXY STREET UK 2023-04-01
                       ABC STREET UK
   115
             Ali
                                          2023-05-01
       Merlin TYU STREET US 2023-04-01
   116
   117
             Shine
                          SDE JUNCTION AFRICA 2023-07-01
        Thomas SDE JUNCTION AFRICA 2023-02-01
   118
   119
             Amov
                          TYU STREET US
                                           2023-02-01
             Lijoy HUI POST CANADA 2023-01-01
   210
```

5. IssueStatus

Issue Id - Set as PRIMARY KEY

Issued_cust – Set as FOREIGN KEY and it refer customer_id in CUSTOMER table Issued_book_name

Issue date

Isbn_book - Set as FOREIGN KEY and it should refer isbn in BOOKS table

```
96 ● ○ CREATE TABLE IssueStatus (
97
           Issue Id INT PRIMARY KEY,
98
           Issued_cust INT,
           Issued_book_name VARCHAR(25),
99
           Issue date DATE,
100
           Isbn_book VARCHAR(20),
101
           FOREIGN KEY (Issued_cust) REFERENCES Customer(Customer_Id),
102
           FOREIGN KEY (Isbn book) REFERENCES Books(ISBN)
103
104
        );
        INSERT INTO IssueStatus (Issue Id, Issued cust, Issued book name, Issue date, Isbn book)
105 •
106
        VALUES
        (21, 111, '1984', '2023-02-21', '9780141182551'),
107
        (22, 112, 'To Kill a Mockingbird', '2023-02-22', '9780061122415'),
108
        (23, 113, 'The Great Gatsby', '2023-02-23', '9780743273565'),
109
        (24, 111, 'Pride and Prejudice', '2023-02-24', '9780141439563'),
110
        (25, 114, 'Frankenstein', '2023-02-25', '9780140449146'),
111
        (26, 116, 'Charlottes Web', '2023-02-26', '9780064407663'),
112
        (27, 117, 'The Hunger Games', '2023-02-27', '9780439023528'),
113
        (28, 115, 'Harry Potter', '2023-02-28', '9780439554930'),
114
        (29, 119, 'The Hobbit', '2023-02-28', '9780544003415'),
115
116
        (30, 210, 'Twilight', '2023-02-3', '9780316015844');
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21
           111
                     1984
                                     2023-02-21 9780141182551
   22
           112
                     To Kill a Mockingbird 2023-02-22 9780061122415
   23
           113
                     The Great Gatsby 2023-02-23 9780743273565
   24
         111
                  Pride and Prejudice 2023-02-24 9780141439563
                                     2023-02-25 9780140449146
                     Frankenstein
  26
                  Charlottes Web 2023-02-26 9780064407663
          116
   27
           117
                     The Hunger Games 2023-02-27 9780439023528
   28
          115
                  Harry Potter 2023-02-28 9780439554930
   29
                     The Hobbit
                                     2023-02-28 9780544003415
           119
                     Twilight
   30
           210
                                    2023-02-03 9780316015844
```

6. ReturnStatus

Return Id - Set as PRIMARY KEY

Return cust

Return_book_name

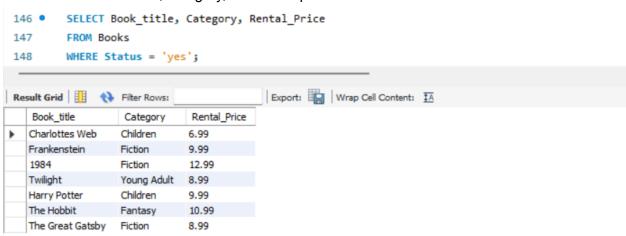
Return date

Isbn book2 - Set as FOREIGN KEY and it should refer isbn in BOOKS table

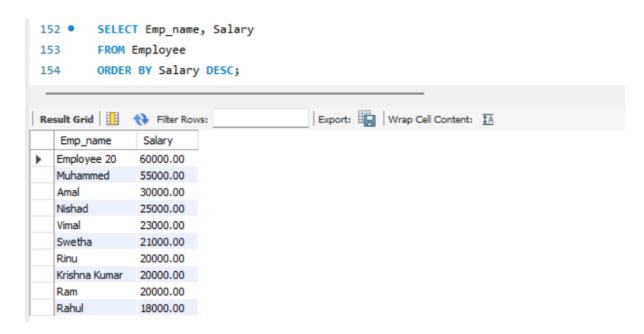
```
120 • ⊖ CREATE TABLE ReturnStatus (
121
            Return Id INT PRIMARY KEY,
            Return cust INT,
122
            Return_book_name VARCHAR(25),
123
124
            Return_date DATE,
            Isbn_book2 VARCHAR(20),
125
            FOREIGN KEY (Return cust) REFERENCES Customer(Customer Id),
126
            FOREIGN KEY (Isbn_book2) REFERENCES Books(ISBN)
127
128
129 •
        INSERT INTO ReturnStatus (Return_Id, Return_cust, Return_book_name, Return_date, Isbn_book2)
130
        (1, 111, '1984', '2024-03-01', '9780141182551'),
131
        (2, 112, 'To Kill a Mockingbird', '2024-03-02', '9780061122415'),
132
        (3, 113, 'The Great Gatsby', '2024-03-03', '9780743273565'),
        (4, 114, 'Pride and Prejudice', '2024-03-04', '9780141439563'),
134
        (5, 115, 'Frankenstein', '2024-03-05', '9780140449146'),
135
        (6, 116, 'Charlottes Web', '2024-03-06', '9780064407663'),
136
        (7, 117, 'The Hunger Games', '2024-03-07', '9780439023528'),
137
        (8, 118, 'Harry Potter', '2024-03-08', '9780439554930'),
138
139
        (9, 119, 'The Hobbit', '2024-03-09', '9780544003415'),
        (10, 210, 'Twilight', '2024-03-10', '9780316015844');
140
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    Return_Id Return_cust
                                            Return date Isbn book2
                          Return_book_name
   1
              111
                          1984
                                            2024-03-01
                                                        9780141182551
   2
              112
                          To Kill a Mockingbird 2024-03-02 9780061122415
   3
              113
                          The Great Gatsby
                                            2024-03-03 9780743273565
             114
                          Pride and Prejudice 2024-03-04 9780141439563
                                            2024-03-05 9780140449146
   5
              115
                          Frankenstein
                          Charlottes Web 2024-03-06 9780064407663
   6
             116
   7
                          The Hunger Games 2024-03-07
              117
                                                        9780439023528
                                           2024-03-08 9780439554930
   8
             118
                          Harry Potter
   Q
              119
                          The Hobbit
                                            2024-03-09
                                                        9780544003415
   10
              210
                          Twilight
                                           2024-03-10
                                                        9780316015844
                         NULL
             NULL
```

Display all the tables and Write the queries for the following:

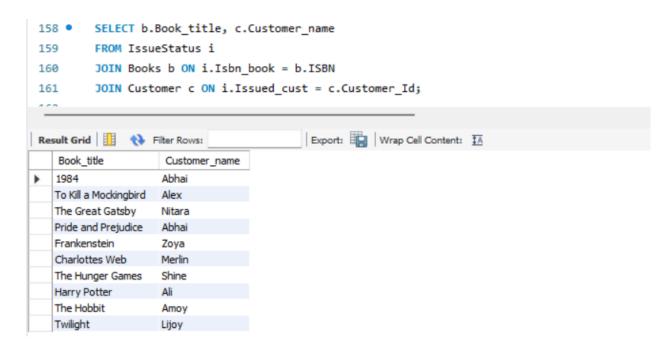
1. Retrieve the book title, category, and rental price of all available books.



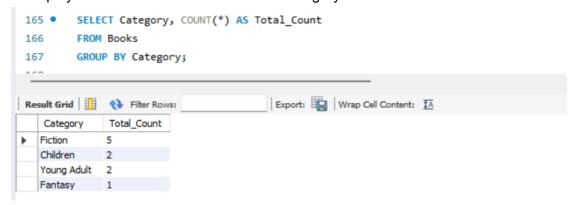
2. List the employee names and their respective salaries in descending order of salary.



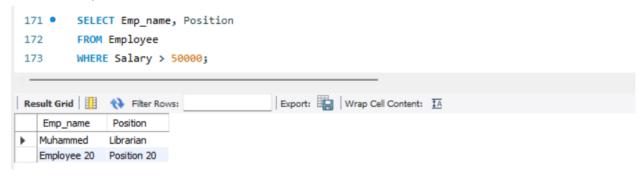
3. Retrieve the book titles and the corresponding customers who have issued those books.



4. Display the total count of books in each category.



5. Retrieve the employee names and their positions for the employees whose salaries are above Rs.50,000.

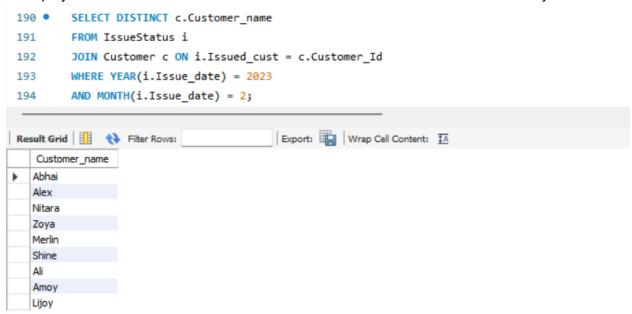


6. List the customer names who registered before 2022-01-01 and have not issued any books yet.

7. Display the branch numbers and the total count of employees in each branch.



8. Display the names of customers who have issued books in the month of February 2023.



9. Retrieve book_title from book table containing history.

10.Retrieve the branch numbers along with the count of employees for branches having more than 2 employees.

- ATHIRA K P - DSML- 19